Applicant respectfully requests that the Examiner clarify the status of claim 17 and, if it was rejected, the basis of such rejection in the next communication.

Regarding the other claims, Applicant respectfully traverses the rejection under 35 U.S.C. § 103(a) because the Examiner has failed to establish a *prima facie* case of obviousness. To establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), each of three requirements must be met. First, the references, taken alone or combined, must teach or suggest each and every element recited in the claims. *See* M.P.E.P. § 2143.03 (8th ed. 2001). Second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the references in a manner resulting in the claimed invention. Third, a reasonable expectation of success must exist. Moreover, each of these requirements must "be found in the prior art, and not be based on applicant's disclosure." M.P.E.P. § 2143 (8th ed. 2001).

The Examiner has failed to establish a *prima facie* case of obviousness at least because the cited references, even when combined, fail to disclose or suggest each and every element recited in the claims. For example, none of the cited references discloses or suggests a stage assembly comprising a guide assembly, the guide assembly including, among others, "a guide bar movable in a first direction . . . a stage movable . . . in a second direction substantially perpendicular to the first direction . . . the stage having a center of gravity substantially positioned in a plane parallel to the first and second directions, the plane parallel to the first and second directions having the center of gravity of the guide bar substantially positioned therein; and an actuator

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1300 I Street, NW
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202.408.4000
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component positioned on the guide bar substantially in the plane parallel to the first and second directions," as recited in claim 1.

Applicant respectfully requests that the Examiner clearly identify the structure in Ebihara that the Examiner is interpreting as the recited "stage." The Examiner stated that Ebihara discloses "a guide bar (2X) movable in a first direction . . . [and] a stage (figure 1) movable . . . in a second direction substantially perpendicular to the first direction." Office Action, page 1. As shown in Fig. 1, Ebihara discloses an X-table mechanism (2x-9x) for driving the table 1 "to move in an X direction" and a Y-table mechanism (2y-9y) for driving the table 1 "to move in a Y direction." Col. 6, lines 54-56. Based on this disclosure in Ebihara and the Examiner's statement, Applicant expects that the Examiner is interpreting the table 1 of Ebihara as the recited "stage." Applicant believes that no other reasonable interpretation is plausible. Accordingly, Applicant offers the following remarks assuming the Examiner is interpreting the table 1 of Ebihara as the recited "stage." Nevertheless, if the Examiner is interpreting Ebihara differently than Applicant expects, Applicant respectfully requests clarification regarding the structure in Fig. 1 of Ebihara that the Examiner is interpreting as the recited "stage."

As shown in Figs. 1 and 2, Ebihara discloses a table 1 "supported for linear movement in the X direction by the air bearing 2x" and a linear motor composed of "the movable element 4x on the table 1 side and the stator 3x on the base 5x side . . . to feed the table 1." Col. 7, lines 16-17 and lines 20-24. But Ebihara is silent about the position of the center of gravity of the air bearing 2x. Although it may be reasonable to interpret that the table 1 has its center of gravity positioned in a plane parallel to the X

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and Y directions, nowhere in Ebihara is it disclosed or suggested that the same plane also has the center of gravity of the air bearing 2x substantially positioned therein.

To the extent that the Examiner is relying on inherency, the Examiner has failed to meet the required burden. *See* M.P.E.P. § 2112. The Examiner alleged that "the plane parallel to the first and second directions [has] the center of gravity of the guide bar substantially positioned therein as inherently understood and as discussed in column 6, lines 45-52." Office Action, page 1. The Examiner, however, has failed to produce a basis in fact or technical reason why, in Ebihara, the plane having the center of gravity of the table 1 positioned therein must also necessarily have the center of gravity of the air bearing 2x substantially positioned therein. Moreover, the Examiner also has failed to explain why a person of ordinary skill in the art would have so recognized the position of the center of gravity of the air bearing 2x.

Column 6, lines 45-52 fails to support the Examiner's alleged inherent disclosure in Ebihara. It merely discloses that the stage apparatus shown in Fig. 1 is formed as a combination stage apparatus, so that it is "movable in any direction in a horizontal plane." It presents a generalized statement for the description that follows it, namely an X-table mechanism (2x-9x) for driving the table 1 "to move in an X direction" and a Y-table mechanism (2y-9y) for driving the table 1 "to move in a Y direction." Col. 6, lines 54-56. From it, no person of ordinary skill in the art would have recognized that, in Ebihara, the plane having the center of gravity of the table 1 positioned therein must also necessarily have the center of gravity of the air bearing 2x substantially positioned therein.

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Furthermore, nowhere in Ebihara is it disclosed or suggested that the linear motor (3x, 4x) is positioned substantially in the plane having the center of gravity of the table 1 positioned therein. Contrary to the Examiner's allegation, the movable element 4x and the stator 3x of the linear motor are positioned below the table 1 as shown in Figs. 1 and 2. Accordingly, neither the movable element 4x nor the stator 3x is positioned substantially in the plane having the center of gravity of the table 1 positioned therein.

Regarding Watson, Applicant again respectfully requests that the Examiner clearly identify the structure in Watson that the Examiner is interpreting as the recited "guide bar." In page 2 of the Office Action, basically repeating Applicant's claim 1, the Examiner alleged that Watson discloses "a guide means movable in a first direction, the guide means having a center of gravity and a guiding portion as discussed in the abstract." The Examiner further alleged that "the plane parallel to the first and second directions [has] the center of gravity of the guide bar substantially positioned therein as disclosed in the abstract, discussed in column 3, lines 44-55 and column 4, lines 7-63." *Id.* However, neither the abstract nor the cited portion of Watson discloses or suggests any "guide means" or "guide bar."

The Examiner stated that Watson discloses "an actuator component (60, 62) positioned on the guide bar" Office Action, page 2. As shown in Fig. 3, Watson discloses actuators 60 and 62 "coupled between the base 18 and a vertical extension 36 of the foundation 22." Col. 4, lines 54-56. Based on this disclosure in Watson and the Examiner's statement, Applicant expects that the Examiner is interpreting either the

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foundation 22 or the base 18 of Watson as the recited "guide bar." Applicant believes that no other reasonable interpretation is plausible. Accordingly, Applicant offers the following remarks assuming the Examiner is interpreting either the foundation 22 or the base 18 of Watson as the recited "guide bar." Nevertheless, if the Examiner is interpreting Watson differently than Applicant expects, Applicant respectfully requests clarification regarding the structure of Watson that the Examiner is interpreting as the recited "guide bar."

Regardless of which interpretation the Examiner is adopting, Watson fails to make up for the deficiencies in Ebihara. Watson at least fails to disclose or suggest that the plane having the center of gravity (designated as "cg" in Watson) of the stage 10 positioned therein also has the center of gravity of either the foundation 22 or the base 18 substantially positioned therein. As shown in Figs. 1-3, "the stage 10 . . . rides on bearings 12 on a flat surface 16 of a base structure 18" and in turn the base 18 is "mounted on a foundation 22." Col. 1, lines 40-42 and line 67. Accordingly, contrary to the Examiner's allegation, the center of gravity of either the foundation 22 or the base 18 is not substantially positioned in the plane having the center of gravity cg of the stage 10 positioned therein.

For at least these reasons, the Examiner has failed to establish a *prima facie* case of obviousness regarding claim 1. Similarly, the Examiner also has failed to establish a *prima facie* case of obviousness regarding claims 23 and 26. Similar to claim 1, none of the cited references discloses or suggests a stage assembly comprising a guide assembly, the guide assembly including, among others, "a first

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moving member movable in a first direction . . . a second moving member movable in a second direction substantially perpendicular to the first direction, the second moving member having a center of gravity substantially positioned in a plane parallel to the first and second directions, the plane parallel to the first and second directions having the center of gravity of the first moving member substantially positioned therein; and an actuator, at least part of the actuator being positioned on the first moving member, the actuator generating a force acting on the first moving member in the second direction, wherein a portion where the force acts on the first moving member is substantially positioned in the plane parallel to the first and second directions," as recited in claim 23. Furthermore, none of the cited references discloses or suggests a method for driving a stage assembly including, among others, "applying a force on the first moving member at a portion in the second direction, wherein a center of gravity of the first moving member and a center of gravity of the second moving member are substantially positioned in a plane parallel to the first and second directions, and wherein the portion is substantially positioned in the plane parallel to the first and second directions," as recited in claim 26.

The Examiner also has failed to establish a *prima facie* case of obviousness regarding claim 14 at least because none of the cited references discloses or suggests a stage assembly comprising a guide assembly, the guide assembly including, among others, "a guide bar movable in a first direction, the guide bar having a center of gravity . . . a stage movable . . . in a second direction substantially perpendicular to the first direction, the stage having a center of gravity spaced apart from the center of gravity of

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the guide bar in the first direction; a first actuator component positioned on the guide bar and aligned with the center of gravity of the stage in the second direction . . . and a second actuator component positioned on the guide bar and aligned with the center of gravity of the guide bar in the second direction." As explained above, Ebihara is silent about the position of the center of gravity of the air bearing 2x. Nowhere in Ebihara is it disclosed or suggested that the center of gravity of the air bearing 2x is spaced apart from the center of gravity of the table 1 in the Y direction shown in Fig. 1. In addition, as admitted by the Examiner on page 2 of the Office Action, Ebihara further fails to disclose or suggest either a first actuator component aligned with the center of gravity of the table 1 in the X direction shown in Fig. 1 or a second actuator component aligned with the center of gravity of the air bearing 2x in the X direction shown in Fig. 1.

Watson fails to make up for these deficiencies in Ebihara. Like Ebihara, Watson is also silent about the position of the center of gravity of either the foundation 22 or the base 18. Nowhere in Watson is it disclosed or suggested that the center of gravity of either the foundation 22 or the base 18 is spaced apart from the center of gravity cg of the stage 10 in the Y direction shown in Fig. 3. In addition, Watson not only fails to disclose or suggest that one of the actuators 60 and 62 is aligned with the center of gravity cg of the stage 10 in the X direction shown in Fig. 3 but also fails to disclose or suggest that the other of the actuators 60 and 62 is aligned with the center of gravity of either the foundation 22 or the base 18 in the X direction shown in Fig. 3. In fact, as clearly shown in Fig. 3, neither the actuator 60 nor the actuator 62 is aligned with the center of gravity cg of the stage 10 in the X direction. Rather, the actuators 60 and 62

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of Watson apply forces directly to the side of the base 18 such that "any net force vector . . . acts in line with the direction of travel x of stage 10 and in line with the center of gravity cg of the stage 10." Col. 4 lines 26-27 and lines 30-32. Thus in Watson, the net force vector, not any of the actuators 60 and 62, is in line with the center of gravity cg of the stage 10 in the X direction.

For at least these reasons, the Examiner has failed to establish a *prima facie* case of obviousness regarding claim 14. Similarly, the Examiner also has failed to establish a *prima facie* case of obviousness regarding claims 25 and 28. Similar to claim 14, none of the cited references discloses or suggests a stage assembly comprising a guide assembly, the guide assembly including, among others, "a first moving member movable in a first direction, the first moving member having a center of gravity; a second moving member movable in a second direction substantially perpendicular to the first direction, the second moving member having a center of gravity spaced apart from the center of gravity of the first moving member in the first direction; a first actuator, at least part of the first actuator being positioned on the first moving member, the first actuator generating a first force acting on the first moving member in the second direction, wherein a first portion where the first force acts on the first moving member is substantially aligned with the center of gravity of the second moving member in the second direction; and a second actuator, at least part of the second actuator being positioned on the first moving member, the second actuator generating a second force acting on the first moving member in the second direction, wherein a second portion where the second force acts on the first moving member is

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substantially aligned with the center of gravity of the first moving member in the second direction," as recited in claim 25. Furthermore, none of the cited references discloses or suggests a method for driving a stage assembly including, among others, "applying a first force on the first moving member at a first portion in the second direction to cancel a reaction force exerted by the second moving member; and applying a second force on the first moving member at a second portion in the second direction to control a position of the first moving member in the second direction, wherein the first portion is aligned with a center of gravity of the second moving member in the second direction, and the second portion is aligned with a center of gravity of the first moving member in the second direction," as recited in claim 28.

For at least the foregoing reasons, independent claims 1, 14, 23, 25, 26, and 28 are in condition for allowance. Claims 2-13, 15-22, 24, and 27 are also in condition for allowance at least by virtue of their dependency from respective allowable independent claims.

In view of the foregoing remarks, Applicant respectfully requests the reconsideration of this application and the timely allowance of the pending claims.

Attached hereto is a marked-up version of the changes made to the specification by this Amendment. The attachment is captioned "**APPENDIX TO AMENDMENT OF DECEMBER 27, 2002**." Deletions appear as normal text surrounded by [ ] and additions appear as underlined text.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
www.finnegan.com

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

Dated: December 27, 2002

By: _____
Chi H. Kang
Reg. No. 50,623

FINNEGAN
HENDERSON
FARABOW
GARRETT &
DUNNER LLP

1300 I Street, NW
Washington, DC 20005
202.408.4000
Fax 202.408.4400
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APPENDIX TO AMENDMENT OF DECEMBER 27, 2002

Amendments to the Specification:

Pages 12-13, paragraph [041]:

(Amended) As schematically illustrated in Fig. 6, actuator component 70 (the portion where the force of actuator component 70 acts on guide bar 55), the center of gravity 82 of guide bar 55, the center of gravity 80 of stage 28, and Y magnet 62 are positioned in a plane P parallel to the X and Y directions (i.e., a plane parallel to the X-Y plane). In other words, actuator component 70, the center of gravity 82 of guide bar 55, the center of gravity 80 of stage [20] 28, and Y magnet 62 all have the same Z position. Positioning actuator component 70, the center of gravity 82 of guide bar 55, the center of gravity 80 of stage 28, and Y magnet 62 in plane P ensures that the forces exerted and applied on guide bar 55 in the Y direction by stage 28 and actuator component 70 produce no torque around the X axis.

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